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BIOCOMPATIBLE DENATURED ALBUMIN LAMINA AND METHOD

ABSTRACT OF THE INVENTION

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The present invention provides a denatured albumin lamina, useful for repairing lesions on solid visceral organs. The lamina comprises human serum albumin, formed into a thin, pliant sheet and denatured. The denatured lamina can be sterilized and stored until used. As well, it can be impregnated with a variety of bioagents.

In another aspect of the present invention, a method is provided for manufacturing the denatured albumin lamina. The method comprises placing a quantity of 50% to 60% (preferably 53%–55%) albumin solution between two nonporous sheets, then spreading the albumin solution between the sheets to a selected and substantially uniform thickness, e.g., 200 μm . The albumin solution sandwich thus formed is placed into a container, which is then evacuated. The sandwich is heated (cured), by autoclaving or immersion in a water bath of at least 86°C (preferably 90°C for five minutes). Denaturation of the entrapped albumin solution changes its state from a viscous liquid to a flexible solid with tensile strength and pliability. Ultimate strength of the flexible solid lamina is directly related to starting albumin solution concentration, curing temperature and curing time.

Another aspect of the present invention is a method comprising welding the albumin lamina to a lesion site on a solid visceral organ. A laser solder can be deployed beneath the lamina to aid in welding it to the organ surface using laser light energy.